# A VOLCANIC ERUPTION IN EAST AFRICA

By C. W. Hobley

About forty miles south of the Anglo-German boundary, and twelve miles south of Lake Natron in the southern extension of the Rift Valley, there is a mountain, called by the Masai —Donyo L'Engai ('The mountain of God'). This mountain is of volcanic origin, and in shape is a very perfect cone, and various travellers have recorded the fact that considerable quantities of steam issued from its crater. Its altitude is, according to German authorities, 9480 feet. It is now bare and devoid of vegetation.

According to the Masai tradition, it is the fountain from which their original live-stock came forth; and they will tell one that they can at times still hear the lowing of cattle inside the mountain; and they occasionally send offerings in the shape of black sheep and goats, which are sacrificed on the mountain-slopes—especially in times of famine, or disease among themselves or their stock. Subterranean noises are, however, not uncommon in volcanoes which are only partially extinct. In January 1917, however, this mountain suddenly burst into active eruption, and continued in eruption until about June. It is said that flames and smoke could be seen as far away as the slopes of Meru Mountain, which is a great extinct volcano about fifty miles east of Donyo L'Engai.

A vast amount of material was ejected from the mountain, and the country for many miles round is covered with a pall of grey volcanic ash and soda.

The Masai state that the layer of volcanic ash was deposited over a large area to the west and as far south as Ngaruka. When the eruption commenced, the Masai were extremely exercised, and sent women to sacrifice animals and pour out calabashes of milk on the slopes of the volcano; the women

even milked their own breasts to appease the anger of the spirits believed to reside within the mountain.

The lava has flowed for a long distance down the valleys which score the flanks of the mountain, and, in cooling, it has cracked into irregular masses, having the appearance of cakes of grey cement.

Farther from the mountain, the country is covered with a powdery ash, and this extends, mixed with soda, to a distance of twenty-five to thirty miles; and large areas of grazing-land have been temporarily destroyed. In some places the deposit of ash resembles black sand.

The western flanks of Gelei Mountain, which rises to a height of nearly 10,000 feet on the east side of Lake Natron, were covered with ash and soda, and the water-holes on the mountain were so fouled with soda that they have become unusable; the springs on the east and south-east side were, however, unaffected.

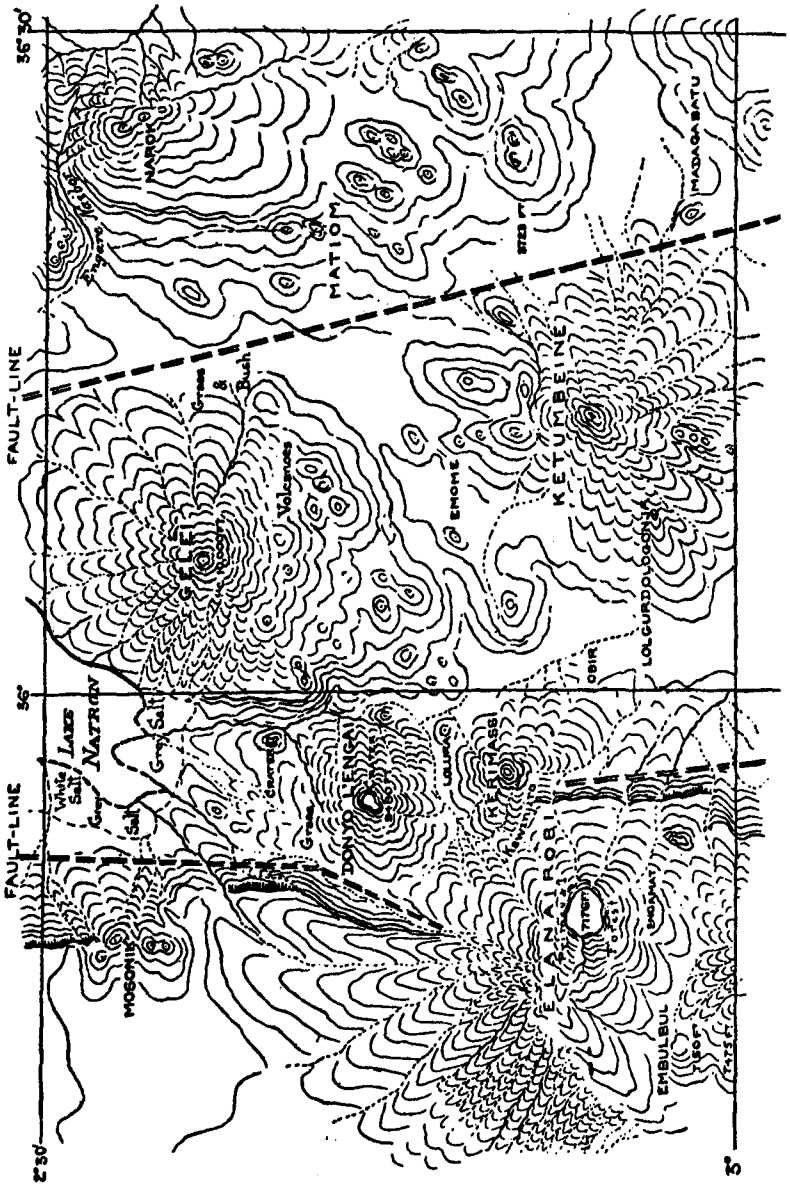
The river, known as Engare Sero, or *Mito miwile*, rising in the high land to the west of Donyo L'Engai, is unaffected, but its banks are covered with a thick deposit of volcanic ejecta. The water in both areas of this stream is still sweet, because the springs rise high up in the western plateau.

Heavy rain occurred in this region early in June 1917, and it is recorded that for a period of four to five days the rain-water was strongly alkaline and undrinkable by cattle. The Masai state that many herds of cattle, located in places where the only water was in pools, have died through drinking the alkaline water.

The mountain is now quiescent and only slightly smoking. The ejection of vast quantities of soda from this volcano appears to be evidence that sodium carbonate is one of the principal constituents of the magma from which the eruptions of the Rift Valley are derived. The persistence of soda in so many of the lakes in that valley, from Rudolf down to Natron and Eyassi, is a marvellous phenomenon.

Mr. Parkinson quotes in one of his papers a theory of Gautin to explain the genesis of thermal waters.

It is assumed that the subterranean magma is largely composed of sodium silicate, and that plutonic water charged




Map of Lake Natron and the Volcanic Region to the South. Scale approximately 1 inch = 10 miles.

with $CO_2$ breaks up the sodium silicate into amorphous silica and sodium carbonate. This would of course satisfactorily explain the existence of the ridges of flint-like silica which occur on the flats near Magadi Lake.

It may be, however, that the magma contains vast amounts of metallic sodium, and that the oxidation of this has provided the motive power for the vast eruptions which have taken place in this area. However, be that as it may, there now appears to be little doubt that the soda is what may be termed inter-telluric, and is not produced by the decomposition of soda felspars or other rocks containing the alkali in question.

There is no record of any previous eruption of this mountain, but it was always remarkable for large white patches on the sides of its cone and a pinnacle on its summit—the latter was, however, blown away during the recent eruption. Herr Kasin, a German scientist, who accompanied Dr. M. Schöller's expedition, informed me that he had ascended Donyo L'Engai and found that the white deposit on the upper portion of the cone was soda. The slopes are now covered with a grey whitish deposit, which is said to give the impression of snow that has fallen on a rough surface.

An examination of the German geological map discloses the fact that, south of Lake Natron, the Rift Valley continues to run southwards through Lake Mweri and Dalanga; another branch runs south-west through Lake Eyassi, and in between the two there is a fault valley which the Germans named the Hohenlohe Graben. From the direction of the two latter, it may be surmised that the complicated scheme of faulting, which caused them, originated in the vicinity of the volcano Donyo L'Engai. This junction has, however, been masked by an extraordinary number of large volcanoes commencing at the north end of Eyassi and running in a north-east direction: these are Oldiani, Ngorongo, Ololmoti, Ololmasin, Elanairobi, Kerimassi, and finally, Donyo L'Engai.

Whether this terrific amount of volcanic action produced the split in the Rift, or *vice versa*, it is impossible at present to conjecture; but it is safe to say that there must have been, and probably still exist, very severe stresses in the earth's crust in this region.

The recent recurrence of eruption in Donyo L'Engai is, to my mind, clear evidence that this area has not reached a state of equilibrium.

I am indebted to Major E. D. Browne for the particulars of this eruption.

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## DOLPHIN (FALOOSI) FISHING OFF MOMBASA.

By Capt. C. W. Woodhouse

The name 'Dolphin' probably conveys to most people a picture of a large porpoise-like animal, which leaps repeatedly out of the water alongside some ocean-going ship; but the dolphin described here is the dolphin of poetry—*Coryphæna haletus*—a true fish, Swahili name 'Faloosi,' well known since very early times, owing to the successive waves of colour which play over its body while dying. These colours include gold, green, green-blue, silver, and, finally, grey when dead. The colours, when alive and free, swimming, are a silvery body, with rich orange on the belly, and a sort of golden sheen over the silver, in some lights; blue spots on the side (when seen from above; a sideways view, when leaping, is silver). Green, mottled with black culmen to the head; spring back-fin, blue and green; eye, bright yellow. The weight of this fish runs from 10 to 80 lb. It is entirely a deep-water fish and, according to fishermen's reports and personal observation, never comes into shallow water.

It is an exceedingly swift-swimming fish, and has the habit of repeatedly leaping out of the water, both when swimming free and when hooked. Its food seems to be cuttle-fish (squid), sardines (seemu and dagaa), and possibly other small fish. With regard to these latter, seemu appears in Mombasa, anyhow, to be the sardine or sprat caught in the harbour; while dagaa seems to be pelagic. The writer could not distinguish any difference in the two species. The season for faloosi is from January to June, but small numbers are caught all the year round. The fishermen state the faloosi